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(71)Applicant: **KANEBO LTD**

(72)Inventor: **MIZUKAMI YOSHIKATSU**
TEJIMA TSUTOMU
AGARI KATSUMI
FUKUMOTO YOKO
ONOE HIROSHI

**(54) FIBER AND NONWOVEN FABRIC
COMPRISING POLYACETAL**

(57) Abstract:

PURPOSE: To obtain a polyacetal fiber, available from a polyacetal having a specific melt viscosity, excellent in heat and chemical resistances and useful for a reinforcing material, a filter, etc.

CONSTITUTION: A polyacetal having 100-500, preferably 200-400 melt viscosity [measured by the flow rate (g) from a nozzle having 2mm diameter at 190°C under 2.16kg load for 10min] is melt spun and drawn to provide a

fiber, which is then formed into nonwoven fabric according to a spunbonding or a melt-blowing method. The polyacetal is obtained by using trioxane as a main monomer and a cyclic ether or a cyclic formal as a comonomer, regulating the amount of the comonomer to 0.2-10wt.%, preferably 0.4-5wt.% based on the trioxane and carrying out the cationic polymerization, etc. The melt viscosity of the polyacetal can be regulated by adding an adequate amount of a suitable chain transfer agent in polymerization.

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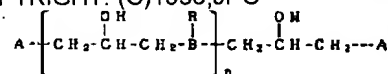
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A01N 33/12
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C09K 3/00(21)Application number: **07004173**(22)Date of filing: **13 . 01 . 95**(71)Applicant: **BATSUKUMAN LAB KK**(72)Inventor: **SUZUKI TAKESHI**
ISHII MASAHIRO**(54)METHOD FOR SURFACE TREATMENT AND
MATERIAL SUBJECTED TO SURFACE
TREATMENT****(57)Abstract:**

PURPOSE: To provide a method for surface treatment for advancing cross-linking of a water-soluble polymer, reducing water solubility, efficiently attaching the polymer to the surface of various materials and to maintain antimicrobial characteristics for a long period of time by treating a specific water-soluble cationic polymer under prescribed conditions.

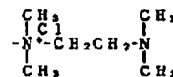
CONSTITUTION: The surface of a target material is treated with a composition containing a compound of formula I [(n) is a positive integer; A is a group of formula II or formula III; X is a group of formula IV (B is N or NCl); R is a 1-3C alkyl or H] while maintaining the material at pH 3 to pH12 (especially preferably pH9 to pH11) at 20-200°C (especially 70-170°C). After the surface treatment, the surface is preferably washed with water. The material treated by the surface treating method has an antimicrobial

cationic polymer firmly attached to the surface of the material with increase in molecular weight. Since the attached cationic polymer will not lose antimicrobial action of the water-soluble cationic polymer, the method is applicable to the field of various water treatments. The application range of the method can be enlarged.

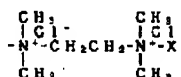
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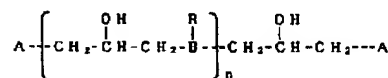
I



II



III



IV

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AURIGIN® SUMMARY PAGE

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(71) Applicant: **DAINICHISEIKA COLOR & CHEM MFG CO LTD**

(72) Inventor: **FUKUTOMI TAKASHI
TAKIZAWA MINORU**

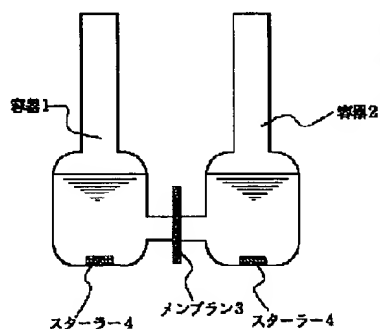
(54) **MOSAIC CHARGE MEMBRANE**

(57) Abstract:

PURPOSE: To provide a mosaic charge membrane having enough strength and enough filtering performance at low cost.

CONSTITUTION: This invention provides a mosaic charge membrane 3 and its production method. In the mosaic charge membrane 3, there are alternately disposed cation polymers and anion polymers. At least one of the polymers are crosslinked spherical polymers having 0.01-10 μ m diameter.

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(71) Applicant: **KURARAY CO LTD**

(72) Inventor: **ASANO MASAJI
KIYOOKA SUMIHITO**

**(54) NONWOVEN FABRIC OF POLYVINYL
ALCOHOL-BASED WATER-SOLUBLE
FILAMENT**

(57) Abstract:

PURPOSE: To obtain nonwoven fabric of polyvinyl alcohol-based water-soluble filament suitable as ground fabric for chemical lace, etc., having light weight, good texture, excellent mechanical properties in spite of nonwoven fabric.

CONSTITUTION: In nonwoven fabric comprising polyvinyl alcohol-based water-soluble filament, the filament has ¹

denier and ≤ 5 denier of single fiber and the interlacing parts of the filament are bonded with a water-soluble resin having ⁵wt.% and ≤ 25 wt.% pickup to give nonwoven fabric having ¹⁰g/m² SP POS= $\frac{1}{2}$ and ≤ 25 g/m² SP POS= $\frac{1}{2}$ weight, ⁶⁰°C and ≤ 100 °C dissolution temperature in water, ^{1.8}kg/2.5cm tensile strength in the width direction, ²kg tear strength in the width direction and ≤ 13 % tensile elongation in width direction.

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D06M 15/263**

(21) Application number: **08345226**

(22) Date of filing: **25 . 12 . 96**

(71) Applicant: **PIGEON CORP**

(72) Inventor: **OMURA ISAO
NAKADA YOICHI**

(54) **STIMULATION-RESPONSIVE OPENABLE
NONWOVEN FABRIC, ITS PRODUCTION AND
TREATMENT THEREOF**

(57) Abstract:

PROBLEM TO BE SOLVED: To produce the subject nonwoven fabric readily openable in an alkaline region without being opened in an acidic and a neutral regions.

SOLUTION: This stimulation-responsive openable nonwoven fabric comprises fibers, constituting the

water-soluble and water-dispersible nonwoven fabric and composed of a cationic resin and an anionic resin and can be produced by coating the water-soluble nonwoven fabric with a coating liquid containing the cationic resin and the anionic resin and then drying the resultant nonwoven fabric. The stimulation-responsive openable nonwoven fabric is opened by immersion thereof in an aqueous medium at a value of pH³8.

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(21) Application number: **08345227**

(22) Date of filing: **25 . 12 . 96**

(71) Applicant: **PIGEON CORP**

(72) Inventor: **OMURA ISAO
NAKADA YOICHI**

(54) **NONWOVEN FABRIC OPENING RESPONDING
TO STIMULATION**

(57) Abstract:

PROBLEM TO BE SOLVED: To obtain nonwoven fabric openable responding to stimulation that does not open in an acidic to neutral region but readily opens in an alkaline region by forming a shape with a number of fibers which can give nonwoven fabric and a specific binder responding to alkali.

SOLUTION: A number of fibers that can form nonwoven

fabric and an alkali-responding binder comprising a cationic resin, for example, cationized cellulose, cationized dextran or cationized guar gum and an anionic resin, for example, carboxyl vinyl polymer, carboxymethyl cellulose (the content in the nonwoven fabric is preferably 0.1-20wt.%) are used to give the fibers a form thereby preparing non-woven fabric that opens responding to stimulation. The cationic resin and the anionic resin are preferably formulated at a weight ratio of 1/9-9/1.

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(21) Application number: **08345228**

(22) Date of filing: **25 . 12 . 96**

(71) Applicant: **PIGEON CORP**

(72) Inventor: **OMURA ISAO
NAKADA YOICHI**

(54) **LIQUID FOR GIVING FIBER-OPENING
PROPERTIES RESPONDING TO STIMULATION**

(57) Abstract:

PROBLEM TO BE SOLVED: To obtain a liquid that can give nonwoven fabric a function to open the fibers of the woven fabric responding to a stimulation, that is, a certain pH value, to disperse them in an aqueous medium by allowing a cationic resin or the like to dissolve in an aqueous medium.

SOLUTION: (A) A cationic resin, for example, cationized cellulose or cationized dextran and (B) an anionic resin, for example, a carboxy-vinyl polymer or carboxymethylcellulose are dissolved or dispersed in an aqueous medium. The weight ratio of the component A to the component B in the solution to be coated is 1/9-9/1. In addition, the contents of both components A and B are 0.1-20wt.% in total in the liquid to be coated.

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(21) Application number: **09322308**

(22) Date of filing: **07 . 11 . 97**

(71) Applicant: **NIPPON SYNTHETIC CHEM IND
CO LTD:THE**

(72) Inventor: **SUZUKI KEITA
HIRAI YOSHIAKI
SAWADA ATSUO
HASEGAWA KENJI**

(54) **WATER-SOLUBLE NONWOVEN FABRIC OR
WOVEN FABRIC MOLDED MATERIAL**

(57) Abstract:

PROBLEM TO BE SOLVED: To provide a water-soluble nonwoven fabric molded material which is quickly dissolved into water to perform disposal treatment and enables sewage disposal and is thin, light and strong and is not softened by moisture absorption, especially, in the case of the molded material used for medical application and nursing and dirtied, it is thin, light and strong and is not softened by moisture absorption and is quickly dissolved when it is dissolved by water

and easily sterilized and simultaneously disposed into sewage.

SOLUTION: The water-soluble nonwoven fabric molded material is constituted by laminating water-soluble polyvinyl alcohol-based nonwoven fabric or woven fabric or at least two sheets or more of water-soluble polyvinyl alcohol-based nonwoven fabric or woven fabric. Water-soluble resin is laminated on at least a sheet of water-soluble polyvinyl alcohol-based nonwoven fabric or woven fabric.

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(22) Date of filing: **07 . 11 . 97**

(71) Applicant: **NIPPON SYNTHETIC CHEM IND
CO LTD:THE**

(72) Inventor: **SAWADA ATSUO
HASEGAWA KENJI
SUZUKI KEITA
HIRAI YOSHIKI**

(54) **PRODUCTION OF HOT WATER-SOLUBLE
NONWOVEN FABRIC**

(57) Abstract:

PROBLEM TO BE SOLVED: To provide a production process for a nonwoven fabric that is made of a polyvinyl alcohol (hereinafter abbreviated to PVA) and is useful for medical purposes such as operating gowns because it is disposable with no occurrence of environmental troubles due to a reason that it can be dissolved in hot water and can be sterilized after being applied.

SOLUTION: A composition of a plasticizer and a hot water-soluble PVA resin, particularly with an average polymerization degree of 150-5,000 and an average saponification degree of 85-100 mol.%, that is soluble in hot water heated above 50°C, preferably above 70°C, is melt-extruded through nozzle orifices arranged in plural rows, the extruded filament group is taken up by sucking jet, blown with jetting air flow to the face for forming a nonwoven sheet to form a web, then the web is pressed with a hot embossing roll.

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(22) Date of filing: **07 . 11 . 97**

(71) Applicant: **NIPPON SYNTHETIC CHEM IND
CO LTD:THE**

(72) Inventor: **SUZUKI KEITA
HIRAI YOSHIKI
SAWADA ATSUO
HASEGAWA KENJI**

**(54) WATER-SOLUBLE NONWOVEN FABRIC
LAMINATE**

(57) Abstract:

PROBLEM TO BE SOLVED: To obtain a nonwoven fabric laminate having sufficient water resistance to water at a temperature of the bodily temperature or below when used as a substrate for medical care or nursing and capable of being disinfected and dissolved in hot water after the use by forming a laminate of water-soluble nonwoven fabrics undergoing water repellent treatment such as a polyvinyl alcohol-based fabric.

SOLUTION: This nonwoven fabric laminate is formed by laminating two or more kinds of water-soluble nonwoven fabrics prepared by applying a fluorine-based water repellent to nonwoven fabrics composed of water soluble resin fibers such as polyvinyl alcohol. The resultant nonwoven fabric laminate is used as a substrate for medical care or nursing and then treated with any of hot water or disinfectant-containing hot water at 70°C, preferably 100°C, disinfected and dissolved.

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(21) Application number: 11112771

(22) Date of filing: 20 . 04 . 99

(71) Applicant: **UNI CHARM CORP**

(72) Inventor: **TAKEUCHI NAOTO
KONISHI TAKAYOSHI**

(54) **MANUFACTURE OF HYDROLYZABLE
CLEANING ARTICLE AND MANUFACTURING
DEVICE THEREFOR**

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(57) Abstract:

PROBLEM TO BE SOLVED: To achieve a sufficient wet strength of a cleaning article made of a hydrolizable nonwoven fabric using alkylcellulose as a binder between fibers by expanding molecular chains of water soluble resin with alkylcellulose dissolved therein to be evenly applied to the hydrolizable nonwoven fabric.

SOLUTION: A solution of highly viscous water-soluble resin is applied to one or both sides of a nonwoven fabric 2 made of water dispersive fibers. The water-soluble resin includes alkylcellulose, and is applied to the nonwoven fabric with the solution being cooled lower than 20°C, or preferably, to 10°C or lower. Coating at a low temperature makes the molecular chains of alkylcellulose sufficiently expand, making fibers of the nonwoven fabric connected each other more strongly, so that the strength of the cleaning article can be increased.

